IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Number	:	10/828,480	Confirmation No.: 7194
Applicant	:	John Lair *et al.*	
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Title	:	Wireless Headset For Communications Device	
TC/Art Unit	:	2681	
Examiner:	:	Wayne Huu Cai	
Docket No.	:	64337.000002	
Customer No.	:	**21967**	

Commissioner for Patents
P.O. Box 1450
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RESPONSIVE AMENDMENT UNDER 37 C.F.R. § 1.111

Sir:

This amendment is filed in response to the non-final Office Action mailed January 13, 2006. Applicants respectfully request reconsideration of this application. A Petition for Extension of Time under 37 C.F.R. § 1.136(a), along with authorization to charge the appropriate fees under 1.17(a)(2) is attached as a separate cover page.

Amendments to the **Claims** begin on **page 2**.

Remarks begin on **page 7**.

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated in the claim listing beginning on the following page 3. This listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1 is amended to set forth an apparatus including the wireless headset to which claim 1 was originally directed and the adapter to which claim 18 was originally directed. Accordingly, claim 18 is cancelled. Additionally, claim 1 is amended to include the limitations of claim 6 which depended indirectly from claim 1 through claims 4 and 5. Claims 4-6 are cancelled. Claim 1 is also amended to include the limitations of claim 13 which depended indirectly from claim 1 through claim 42. Claims 13 and 42 are cancelled. Claims 14, 20, 22-23 and 34-41 are also cancelled without prejudice. Claims 3, 7-12, 15, 16, 19, 21, 24, and 25 are amended to conform to the amendment to claim 1. Claims 19, 21, 24 and 25 previously depending from claim 18 are amended to depend from claim 1.

Claims 1, 3, 7-12, 15, 16, 19, 21, and 24-33 remain pending. Claims 1 and 26 are independent claims.

LISTING OF CLAIMS:

1. (Currently Amended) ~~A wireless headset~~ An apparatus for wirelessly communicating audio information to and from a half-duplex ~~communications device~~ radio, the ~~headset~~ apparatus comprising:

an adapter for operable connection to a portable half-duplex radio, and

a wireless headset for wirelessly communicating information to the adapter; wherein said wireless headset comprises:

a body adapted to worn on a user's head;

a speaker assembly included in the body and adapted ~~to be worn on a user's head and~~ to output audio information to the user;

a microphone assembly included in the body and adapted to receive audio information from the user;

a switch positioned on the body; and

an encoder adapted to convert an analog signal representative of the audio information from the user to digital signal;

a processor operably connected to the encoder and adapted to packetize the digital signal; and

a transceiver adapted to wirelessly transmit a first transmit mode signal representative of an engagement of the switch to the ~~half-duplex communications device,~~ adapter and to wirelessly transmit the packetized digital signal of the audio information; and

said adapter comprises:

an interface for operable connection to the portable half-duplex radio;

a transceiver adapted to receive the first transmit mode signal directly from the wireless headset; and

a processor connected to the interface adapted to provide a second transmit mode signal to the half-duplex radio upon receipt of the first transmit mode signal, the second transmit mode signal for causing the half-duplex ~~communications device~~ radio to enter a half-duplex transmission mode.

2. (Cancelled)

3. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 1, wherein the switch is positioned on the microphone assembly.

4 - 6. (Cancelled)

7. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 1, wherein the speaker assembly includes an earbud speaker.

8. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 1, ~~further comprising~~ wherein the body forms an earclip.

9. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 8, wherein the speaker assembly includes an ear insert for insertion into the user's ear canal.

10. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 9, wherein the ear insert comprises a conformable material.

11. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 9, wherein the switch is positioned substantially coaxially with the ear insert.

12. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 1, wherein said wireless headset further ~~comprising~~ comprises a headband.

13 - 14. (Cancelled)

15. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 1, wherein the signal representative of an engagement of the switch includes a signal transmitted during at least a portion of a period that the switch is engaged.

16. (Currently Amended) The ~~wireless headset~~ apparatus as in Claim 1, wherein the signal representative of an engagement of the switch includes an absence of a signal during at least a portion of a period that the switch is engaged.

17 - 18. (Cancelled)

19. (Currently Amended) The apparatus as in Claim ~~18~~ 1, wherein the adapter processor is adapted to receive audio information via the adapter transceiver and provide the audio information to the half-duplex ~~communications device~~ radio via the interface.

20. (Cancelled)

21. (Currently Amended) The apparatus as in Claim ~~18~~ 1, wherein the adapter processor is adapted to receive audio information from the half-duplex ~~communications device~~ radio via the interface and transmit at least a portion of the audio information via the adapter transceiver.

22 - 23. (Cancelled)

24. (Currently Amended) The apparatus as in Claim ~~18~~ 1, wherein the ~~apparatus~~ adapter is integrated with the half-duplex ~~communications device~~ radio.

25. (Currently Amended) The apparatus as in Claim ~~18~~ 1, wherein the ~~apparatus~~ adapter is separate from the half-duplex ~~communications device~~ radio.

26. (Previously Presented) A system comprising:

a half-duplex communications device; and

a headset wirelessly connected to the half-duplex communications device;

wherein the headset is adapted to wirelessly transmit a transmit mode signal for reception by the half-duplex communications device, the transmit mode signal causing the half-duplex communications device to enter a half-duplex transmission mode; and

wherein the half-duplex communications device is adapted to transmit in the half-duplex transmission mode audio information based at least in part upon receipt of the transmit mode signal.

27. (Original) The system as in Claim 26, wherein the headset includes a switch operable by a user and wherein the transmit mode signal is transmitted when the switch is engaged by the user.

28. (Original) The system as in Claim 27, wherein the transmit mode signal includes a signal transmitted during at least a portion of a period that the switch is engaged.

29. (Original) The system as in Claim 27, wherein the transmit mode signal includes an absence of a signal during at least a portion of a period that the switch is engaged.

30. (Original) The system as in Claim 26, wherein the headset is further adapted to wirelessly transmit the audio information for reception by the half-duplex communications device.

31. (Previously Presented) The system as in Claim 30, wherein the half-duplex communications device is adapted to wirelessly transmit audio information for reception by the headset.

32. (Original) The system as in Claim 31, wherein the audio information from the headset and the audio information from the half-duplex communications device is transmitted as packetized digital information.

33. (Original) The system as in Claim 26, wherein the half-duplex communications device is selected from one of a group comprising: a two-way radio and a cellular phone.

34 - 42. (Cancelled)

REMARKS

INTERVIEW SUMMARY

The Examiner and applicants' representative conducted a personal interview on May 31, 2006. The newly applied reference, U.S. Patent 6,745,014 (Seibert), was discussed. Applicants' representative noted several differences between the Seibert system and applicants' invention. A proposed amendment to claim 1 was discussed. Finally, the Examiner's consideration of applicants' showing of commercial success was discussed.

SUMMARY OF SEIBERT

The Seibert invention is directed to different purpose from applicants' invention. The Seibert patent is assigned to the National Aeronautics and Space Administration (NASA) and is intended to be used in an environment with a highly developed communications infrastructure such as a rocket launch pad and command center. Conventional wired communications systems such as private branch exchanges and multiline telephones are used in such environments. Such conventional telephone systems have previously employed hard-wired communications headsets. Generally, these wired headsets have a push-to-talk (PTT) device. Thus, a user can continuously hear the communications of others using the system, but must actuate a push button when they want to talk on the system. This arrangement is especially desirable where a large number of users are communicating on a single channel by substantially reducing extraneous and inopportune background noise. The Seibert apparatus enables commercial off-the-shelf (COTS) wireless headsets to be used with these communications systems without the need to modify the headsets or the communications system.

The conventional wireless headset shown in Seibert includes a pair of headphones and a microphone. A transceiver transmits voice inputs from the microphone to a headset system base and receives audio signals from the headset system base to power the headphones. The transceiver of Seibert is not incorporated into the structure worn on the user's head as illustrated in Figures 1 and 3. The worn headset is connected by a wire to the transceiver, which transmits and receives audio information with the headset base.

The COTS headset systems transmit and receive continuously and do not provide the PTT function of the wired headsets used with the communications systems addressed by Seibert. Seibert provides a universal interface adapter circuit for connecting a COTS wireless headset

system with any type of communications system. Seibert provides a remote signaling transmitter for transmitting signals to a receiver in the universal interface adapter circuit.

DIFFERENCES BETWEEN SEIBERT AND APPLICANTS' INVENTION

Applicants' invention is directed to providing a wireless headset for half-duplex communications devices such as portable two-way radios. Half-duplex radios use one frequency for both transmitted and received signals. Thus, half-duplex radios are not configured to support simultaneous two-way communications. The transceiver of a half-duplex radio must be switched from a receive mode to a transmit mode to transmit information. In the receive mode the transceiver is able to receive but not transmit. In the transmit mode the transceiver is able to transmit but not receive. A typical half-duplex radio provides an accessory jack through which a remote microphone may be connected. Such microphones include a PTT button to enable the user to transmit. Such remote microphones are commonly seen attached to the shoulders of law enforcement officers.

In one embodiment of applicants' invention, a wireless headset is provided as an accessory to the half-duplex radio. The wireless headset has the advantage of eliminating the wire between the users head and shoulders and the half-duplex radio. The wireless headset may be in the form an earclip that is worn on the user's head. To use such a headset with half-duplex radios, applicants developed a headset with a PTT button that is used to activate the transmit mode of the half-duplex radio. In this embodiment, an adapter is connected to the accessory jack of the half-duplex radio. The adapter includes a transceiver for exchanging audio information with a wireless headset worn by the user. The wireless headset includes a button that when triggered causes a signal to be transmitted to the adapters transceiver. The adapter then provides a transmit signal to the half-duplex radio through the accessory jack.

Applicants' invention is intended for use, for example, by law enforcement, public safety, military, and other personnel in environments with little or no communications infrastructure. Seibert is intended for use in an environment with a highly developed communications infrastructure where wired communications systems are typically used. Applicants' invention eliminates the wire between the user's head and the radio transmitting voice information to others. Seibert does not eliminate this wire. Applicants' invention is intended for use with half-duplex radios. Seibert's system is used in telephone type communication systems in which the

user can continuously hear the communications of others using the system. Thus, Seibert does not disclose half duplex radios.

During the interview the Examiner acknowledged these differences between applicants' invention and Seibert.

DISCUSSION OF THE CLAIMS

Claim 1 as rejected is directed to applicants' innovative wireless headset. Claim 1 sets forth a wireless headset including a switch and transceiver adapted to wirelessly transmit a PTT signal. Seibert describes COTS wireless headsets that do not include a switch or a transceiver adapted to transmit PTT signals. Seibert describes a remote signaling transmitter that includes a switch and transmitter module for transmitting signals to the universal interface adapter circuit. Thus, Seibert does not teach a wireless headset including a switch and transceiver as set forth by claim 1. Claim 13 as rejected depended from claim 1 and clearly set forth that the switch is on the body of the wireless headset. The switch of Siebert is on a separate remote transmitter. Claim 6 as rejected indirectly depended from claim 1 and set forth the transceiver being further adapted to wirelessly transmit a packetized digital signal representative of audio information from the user. Thus, the claimed transceiver both transmits the audio information and the PTT signal. Siebert relies on two separate components, a transceiver connected to the COTS headset and the remote transmitter.

Claim 18 as rejected is directed to applicants' innovative adapter operably connected to a half-duplex radio. Claim 18 set forth a transceiver adapted to receive signals from a wireless headset. The universal interface adapter circuit of Seibert does not receive signals from the headset. This adapter circuit rather receives signals from the headset system base and the remote transmitter. Claim 22 as rejected depended from claim 18. Claim 22 set forth that the transmit mode signal is received from the wireless headset. Seibert teaches no PTT signals received from the headset.

Applicants' representative noted that the commercial embodiment of the invention demonstrated at the September 12, 2005, interview includes both the wireless headset set forth in claim 1 as rejected and the adapter set forth in claim 18 as rejected. At the recent interview, it was proposed to amend claim 1 to set forth an apparatus including both the wireless headset and the adapter. It was further proposed that limitations of the dependent claims set forth above be

included in independent claim 1. The Examiner stated that such a claim is not anticipated by the prior art of record including the Seibert reference. The Examiner indicated that the proposed amendment to claim 1 serves to address his concerns regarding the breath of the claims.

REJECTIONS UNDER SECTION 103

During the prosecution of this application, applicants have provided extensive evidence demonstrating commercial success of the claimed invention. Applicants' claimed invention has continued to enjoy commercial success. Applicants maintain that this evidence of commercial success must be considered in any rejection made under 35 U.S.C. § 103. The rejections under 35 U.S.C. § 103 in the recent Office action do not address applicants' showing of commercial success. In light of the Examiner's acknowledgement that the prior art of record does not anticipate proposed claim 1, the requirements of rejection under 35 U.S.C. § 103 was raised at the interview. The Examiner stated that his concern was primarily that the evidence set forth in the affidavits of record is not commensurate in scope with the claims. The Examiner stated that proposed claim 1 is commensurate in scope with the device demonstrated at the prior interview and thus applicants' evidence of commercial success will be considered in any potential rejection under 35 U.S.C. § 103.

RESPONSE TO OFFICE ACTION

Each pending claim was rejected in view of the prior art in the recent Office action. Claims 1, 4, 15-16, 18-26, 30-31, 33, 34-39, and 41-42 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Seibert. Claims 3, 7-14 and 27-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Seibert in view of U.S. Patent 5,101,504 (Lenz). Claims 5, 6, 32 and 40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable in view of Seibert in view of U.S. Patent Publication 2002/0057746 (Chen).

Claim 1 is amended as proposed during the interview to combine the wireless headset and adapter previously set forth in claims 1 and 18 respectively. Claim 1 is further amended to include limitations from dependent claims 6, 13 and 22. Claim 4-6, 13, 14, 20, 22-24 and 34-42 are cancelled without prejudice. Applicants respectfully submit that claim 1 as amended is patentable for the reasons discussed during the interview. Claim 1 as amended sets forth an apparatus for communication with a half-duplex radio. Seibert does not teach or suggest communication with a half-duplex radio. Claim 1 as amended sets forth that the PTT switch is

positioned on the body of the headset. Seibert does not teach or suggest a PTT switch on the body of a headset. Claim 1 as amended sets forth a headset transceiver adapted to transmit both a transmit mode signal and an audio signal. Seibert does not teach or suggest a transceiver that transmits both a transmit mode signal and an audio signal. Claim 1 sets forth an adapter including a transceiver adapted to receive a transmit mode signal directly from the headset. Seibert does not teach or suggest an adapter transceiver that receives a transmit mode signal directly from a headset. For at least these reasons, Seibert does not anticipated claim 1.

Applicants respectfully submit that claim 1 as amended is patentable over the art of record applied in any proper combination. Claim 1 as amended sets forth a transceiver in the headset that transmits both a transmit mode signal and an audio signal. Nowhere in the art of record is such a transceiver taught or suggested. Furthermore, applicants continue to achieve significant commercial success with the claimed invention. Applicants respectfully submit that the evidence of commercial success of record in this application must be considered in making any rejection under 35 U.S.C. § 103. Applicants respectfully submit that the evidence of record is commensurate in scope with the pending claims. Further, applicants note that the reference to Lenz was applied in the prior Office action to show a switch positioned on a headset. The combination of Lenz with Seibert is improper. Seibert acknowledges that there are wired headsets that have push-to-talk devices. Seibert, col. 1, ll. 43. The purpose of Seibert, however, is to "enable wireless-communication headsets to be used with various types of communications systems, *without the need to modify the headsets*." Seibert, col. 1, ll. 24-27 (emphasis added). Thus, Seibert teaches away from incorporating the known features of wired headsets in the wireless headsets. For at least the above reasons, claim 1 is patentable over the art of record.

Claims 3, 7-12, 15, 16, 19, 21, 24 and 25 as amended depend from claim 1. These claims are thus patentable over Seibert for the reasons set forth above. Claim 3 further sets forth that the switch is positioned on the microphone assembly. The Office action asserts that Lenz discloses a switch is positioned on a microphone assembly. To the contrary, Lenz describes that "[t]he switch is mounted on the earphone." Lenz, col. 2, l. 56. Claim 7 sets forth that the speaker assembly includes an earbud speaker. Claim 9 sets forth that the speaker assembly includes an ear insert for insertion into the user's ear canal. Claim 10 sets forth that the ear insert comprises a conformable material. The Examiner asserts that these limitations of claims 7, 9 and 10 are "well known in the art since [they are] just variation[s] in design or style of wireless

headsets." Office Action, p. 8. Applicants have repeatedly noted that it is unclear whether or not the Examiner is asserting that these limitations are mere aesthetic design changes. The Office Action does not clarify the Examiner's position on this issue. Applicants submit that these limitations have clear mechanical functions and that the Examiner has not identified these limitations in the prior art. Accordingly, the Examiner has failed to set forth a *prima facie* case of obviousness against these claims. Claim 11 depends from claim 9 and sets forth that the switch is positioned substantially coaxially with the ear insert. The Office Action does not address this limitation of claim 11. Claim 15 sets forth that the signal representative of an engagement of the switch includes a signal transmitted during at least a portion of a period that the switch is engaged. Claim 16 sets forth that the signal representative of an engagement of the switch includes an absence of a signal during at least a portion of a period that the switch is engaged. The Examiner asserts that it is inherent that the signal representative of an engagement of the switch of Seibert includes a signal transmitted or an absence of a signal during at least a portion of a period that the switch in engaged. Office Action, p. 3. Such limitations are not inherent in the teaching of Seibert. To the contrary, Seibert describes that the closure of a relay causes sending of a signal telling the communications system that the PTT message was issued by the headset user. Another message reverses the operation. Seibert col. 6, ll. 3-13. For at least the above reasons, applicants respectfully submit that claims 3, 7-12, 15, 16, 19, 21, 24, and 25 are patentable over the applied art.

Claim 26 sets forth a system including a half-duplex communications device and a wireless headset that operates similarly to the apparatus set forth in claim 1. Claim 26 stands rejected as being anticipated by Seibert. The system of claim 26 includes a half-duplex communications device. Seibert does not teach a half-duplex communications device. Seibert is directed to an interface that connects to conventional wired telephone communications systems in which a user can continuously hear the communications of others using the system. Claim 26 sets forth a wireless headset that is adapted to wirelessly transmit a transmit mode signal. Seibert does not teach a wireless headset that is adapted to wirelessly transmit a transmit mode signal. To the contrary, Seibert describes a remote transmitter that transmits a PTT signal. For at least these reasons, Seibert fails to anticipate claim 26.

Claims 27-33 depend from claim 26. Accordingly, claims 27-33 are patentable over Seibert for the reasons set forth above. Claim 28 sets forth that the transmit mode signal includes

a signal transmitted during at least a portion of a period that the switch is engaged. The Examiner relies on the disclosure of Lenz at column 2, lines 28-30, "When the wearer wishes to transmit, he must activate a 'push-to-talk' switch 24." Lenz merely discloses the switch is engaged. Lenz does not show or suggest that a signal transmitted during the period that the switch is engaged. Claims 29 sets forth that the transmit mode signal includes an absence of a signal during at least a portion of a period that the switch is engaged. The Examiner acknowledges the applied prior art is silent regarding these limitations. Office Action, p. 8. The Examiner asserts, "there must be a gap between the transmit mode and the receive mode." Office Action p. 8. There is no suggestion in the prior art of such a gap. Even if there was such a gap, there is no suggestion that such a gap would be an absence of a signal during a period that the switch is engaged as set forth by claim 29. For the above reasons, applicants respectfully submit that claims 27-33 are patentable over the applied art.

CONCLUSION

The Office Action, references, and rejections have been duly considered by the applicants and addressed by the foregoing remarks. During the recent personal interview the Examiner indicated the amendment to claim 1 would serve to advance the prosecution of this application. Applicants respectfully submit that claim 1 as amended is patentable over the art of record. Applicants respectfully request reconsideration of this application and the withdrawal of the outstanding rejections. Should the Examiner require resolution of any issues, the Examiner is invited to contact the undersigned to expedite the prosecution of this application.

Respectfully submitted,

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